Appl. No.	:	10/628,181
Applicant	:	Min-Yi Shih and Thomas B. Gorczyca
Filed	:	25 July 2003
Title	:	INDEX CONTRAST ENHANCED OPTICAL WAVEGUIDES AND FABRICATION METHODS
TC/A.U.	:	1732
Examiner	:	Mathieu D. Vargot
Docket No.	:	134404-1
Customer No.	:	6147

Commissioner for Patents
P.O. Box 1450
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PRE-APPEAL BRIEF REQUEST FOR REVIEW

In accordance with the OG Notice of July 12, 2005, Appellant respectfully submits this Pre-Appeal Brief Request for Review. This Request is being filed concurrently with a Notice of Appeal.

In the Final Office Action mailed on 6 July 2006 and the Advisory Action of 1 September 2006, the Examiner rejected claims 1-8, 10-11, and 13-32. Because Appellant believes that the rejections are improper, the present Appeal has been filed.

Appellant respectfully traverses the rejection of claims 1-7, 10-11, and 13-32 under 35 USC 102(e) on Nishimura et al. US6828078 and claim 8 under 35 USC 103(a) on Nishimura. Appellant has split the discussion of the rejections into sections to discuss the two independent claims in turn.

Claims 1-7, 10-11, and 13-15

Appellant respectfully submits that Nishimura does not teach or disclose the independent claim 1 recitations of (with emphasis added):

> **depositing a polymerizable composite** on a substrate to form a layer, patterning the layer to define an exposed area and an unexposed area of the layer in a manner such that the unexposed are includes the core region, irradiating the exposed area of the layer, and volatilizing the uncured monomer to form the waveguide, **wherein the polymerizable composite comprises a polymer binder and sufficient quantities of an uncured monomer to diffuse into the exposed area of the layer and form the index contrast region.**

Appellant continues to submit that Nishimura describes generation of a "low RI (reactive index)" area by locally generating (by photo patterning) an acid which decomposes the high RI component (A) which then must be removed from the system by volatilization. The decomposition only reduces the molecular weight of the high RI component so it can volatilize - the decomposition does not change the RI. Once volatilized, the region has less of the high RI component-A and therefore a lower RI.

Decomposition itself does not change the RI of component-A or the region. The RI only decreases when component-A is removed. The degree of decomposition of component-A and resulting amount volatilized (and subsequent change in RI) probably is effected by the amount of photoacid present, and the photoacid may be able to move around (or diffuse) a bit, but decomposition/volatilization of component-A is what causes the RI change. More specifically, **uncured monomers are not described or present in Nishimura's patent**, and no polymerization is described as forming index contrast areas.

Additionally, claim 1 includes the recitation of "**wherein the polymerizable composite comprises a polymer binder and sufficient quantities of an uncured monomer to diffuse into the exposed area of the layer and form the index contrast region.**" Appellant can find no disclosure of this recitation in Nishimura.

The above arguments are excerpts from Appellant's response to final rejection dated 24 August 2006. In response to the above arguments, with respect to claim 1, the Advisory Action states:

> Applicant submits that the decomposition of Nishimura only reduces the MW of the high RI component so that it can volatize, but that the decomposition does not change the RI. However, claim 1 does not require that the RI be changed, but merely that uncured monomer be volatized to diffuse to form the index contrast region. *It is submitted that once the high RI material is decomposed, this decomposition product becomes an uncured monomer which does diffuse to some extent to form the instant index contrast region.* (emphasis added)

Appellant respectfully traverses the assertion in the Office action that high RI component A would constitute an uncured monomer. If anything, RI component A is more like a solvent (which evaporates from the system) and more particularly resembles a solvent used to cast a composite blend on a substrate. Even if the RI component A was somehow construed to resemble an uncured monomer, however, the argument ignores the claim recitation about the composition of the polyermerizable composite comprising the uncured monomer. If the monomer is not formed until after several steps, the polymer composite itself did not comprise it. Instead, the layer resulting after the patterning, irradiating, and volatilizing would comprise it.

Accordingly, Appellant respectfully submits that claim 1, and claims 2-8, 10-11, and 13-15 which depend therefrom, define allowable subject matter over Nishimura.

Claims 16-32

Appellant respectfully submits that Nishimura does not teach or disclose the independent claim 16 recitations of (with emphasis added):

> providing a polymerizable composite comprising a polymer binder and an uncured monomer, depositing the polymerizable composite on a substrate to form a layer, patterning the layer to define an exposed area and an unexposed area of the layer, **one portion of the unexposed area comprising the core region and another portion of the unexposed area comprising a diffusion source region**, irradiating the exposed area of the layer, and **volatilizing the uncured monomer to form the waveguide and index contrast region**.

The volatizing uncured monomer recitation and the fact that the composite includes an uncured monomer are discussed above with respect to claim 1.

Claim 16 additionally includes the recitation of: one portion of the unexposed area comprising the core region and another portion of the unexposed area comprising a diffusion source region. Appellant can find no reference to a diffusion source region in Nishimura. These are described in Appellant's specification with respect to at least FIGs. 14-19, for example.

In response to the above arguments, with respect to claim 16 the Advisory Action states:

> Concerning claim 16, once the high RI material is decomposed, such constitutes a diffusion source region.

Again, however, this analysis appears to disregard a portion of the claim 16 (patterning the layer to define an exposed area and an unexposed area of the layer, one portion of the unexposed area comprising the core region and another portion of the unexposed area comprising a diffusion source region). Photo-patterning in Nishimura occurs before decomposition/volatilization, so to say that the decomposition provides the diffusion source region would not seem to teach or suggest patterning of such regions.

Accordingly, Appellant respectfully submits that claim 16 and claims 17-32 which depend therefrom define allowable subject matter over Nishimura.

Summary

Appellant respectfully requests that the Panel instruct the Examiner to withdraw the outstanding rejections and allow the pending claims.

Respectfully submitted,

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